Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

A9C78

VOL. 25 NO. 9 February 28, 1975

Reserve

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S.DEPARTMENT OF AGRICULTURE

U.S. DEPT. OF AGRICULTURE
NAT'L AGRIC. LIBRARY
RECEIVED
MAR 17 '75
PROCUREMENT SECTION
CURRENT SERIAL RECORDS

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

Volume 25 February 28, 1975 Number 9

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG heavy in some small grains in Rolling Plains of Texas and in southwest Oklahoma. Some beneficial species reported active in Texas areas of infestation. (p. 95).

A LEAFMINER FLY increased in celery in Everglades area of Florida during February with resulting loss in grade and value of crop. (p. 97).

Detection

New State records include 2 LEAFHOPPERS in Kentucky (p. 100) and a THRIPS in Florida (p. 97).

For new county records see page 100.

Some First Appearances of the Season

ALFALFA WEEVIL larvae in Tennessee and Alabama. EGYPTIAN ALFALFA WEEVIL in Arizona. VEGETABLE WEEVIL in Alabama. PEAR PSYLLA eggs and GREEN PEACH APHID in fruit areas of Oregon. FACE FLY adults in Mississippi. EASTERN SUBTERRANEAN TERMITE swarms in Maryland.

Special Reports

Comments on a Published Bibliography on the Black Cutworm, Agrotis ipsilon (Hufnagel). (p. 101).

Summary of Insect Conditions in the United States - 1974.
  Introduction. (p. 102).
  Special Insects of Regional Significance. (pp. 102-120).

Distribution of Spotted Alfalfa Aphid (map). (p. 117).

State Survey Coordinators. (pp. 121-124).

Cooperative Survey Entomologists. (pp. 125-127).

Japanese Beetle Quarantines. Map. Centerfold.

Reports in this issue are for week ending February 21 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance....................95

Insects Affecting

Corn, Sorghum, Sugarcane...95
Small Grains...............96
Forage Legumes.............96
Cole Crops.................96
General Vegetables.........97
Deciduous Fruits and Nuts..97
Small Fruits...............97
Ornamentals................97
Forest and Shade Trees.....98
Man and Animals............98
Households and Structures..99

Federal and State Plant Protection Programs....................99
Corrections....................99
Light Trap Collections....................99
Detection....................100
Comments on a Published Bibliography on the Black Cutworm, Agrotis ipsilon (Hufnagel)....................101
Summary of Insect Conditions in the United States - 1974
Introduction....................102
Special Insects of Regional Significance....................102
Distribution of Spotted Alfalfa Aphid (map)....................117
State Survey Coordinators....................121
Cooperative Survey Entomologists....................125
Japanese Beetle Quarantines. Map. Centerfold.

WEATHER OF THE WEEK ENDING FEBRUARY 24

Reprinted from Weekly Weather and Crop Bulletin supplied by National Weather Service, NOAA.

HIGHLIGHTS: A storm packing heavy precipitation, tornadoes, and high winds cut a path from eastern Oklahoma through the Ohio Valley last week. This powerful storm dumped precipitation in excess of 3 inches across a widespread area including Illinois, Indiana, Kentucky, and Ohio. In the Southeastern United States, other storm systems soaked the area with over 2 inches of rain. Macon, Georgia, reported more than 5 inches of precipitation for the week.

PRECIPITATION: A cold front drifting eastward from the eastern Plains triggered widespread, and at times, heavy precipitation across the entire eastern half of the Nation last week. The Pacific Northwest coastal areas got more than 2 inches of rain, while some light precipitation was recorded in most other sections of the country. Monday, a Low centered in northern Illinois and another hovering over the Dakotas triggered widespread snow from the Dakotas eastward to the Lakes area. Some freezing rain occurred in southern Michigan. The Lows joined on Tuesday in southern Quebec and a front extended through New England into the Atlantic and then from North Carolina to central Mississippi and southwestward along the Texas coast. Light snow blanketed the Great Lakes area westward to the Dakotas, southward to Oklahoma and Missouri, and along the front in New England. Meanwhile, thunderstorms moved through parts of northern Mississippi, Alabama, Georgia, South Carolina, and extreme southeast North Carolina. Wednesday, heavy rains peppered with thunder-

Weather of the week continued on page 128.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - TEXAS - Larvae ranged light to moderate, caused some damage to wheat in Hamlin area of Jones County. (Boring).

ARMYWORM (Pseudaletia unipuncta) - SOUTH CAROLINA - Collected from rye in Williamsburg County February 6, 1975, by W.B. Epps. Determined by C.A. Thomas. This is a new county record. (McCaskill).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Averaged 100+ per linear foot near Lovington, Lea County, where 2 to 3-inch barley covered with honeydew. Light, 3-10 per linear foot, near Artesia, Eddy County. (N.M. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - TEXAS - Light to moderate on small grains in all Rolling Plains counties, but ranged moderate to heavy in fields in Archer, Baylor, Foard, Hardeman, Haskell, Knox, Throckmorton, Wichita, Wilbarger, and Young Counties. Infestations in more heavily infested fields ranged 70-350 per drill row foot. Beneficial species increased in fields within area. Wasp-parastized greenbugs reported from fields in Archer, Baylor, and Hardeman Counties. In some Hardeman County fields up to 22 greenbugs parasitized per row foot. However, in these same fields, S. graminum averaged 170 per row foot. Lady beetles light, observed feeding on greenbugs in fields in Hardeman and Wichita Counties. Nabids and spiders preying on greenbugs in fields in Archer and Baylor Counties. (Boring).

NEW MEXICO - Greenbug averaged 1 per linear foot in wheat and some barley near Lovington, Lea County; up to 12 per linear foot noted in some areas. Counts in Eddy County ranged 0-1 per linear foot. (N.M. Coop. Rpt.). OKLAHOMA - Counts per linear foot in wheat ranged as follows by county: Tillman 45-240, Jackson 15-95, and Harmon 50-65. Occasional Hippodamia convergens (convergent lady beetle) adults present in greenbug-infested wheat in Jackson and Tillman Counties. (Okla. Coop. Sur.). ARKANSAS - Remained very light with only trace numbers found in wheat in northwest area. (Boyer). VIRGINIA - Collected on wheat, barley, and oats at Warsaw, Richmond County, February 14, 1975, by J.E. Roberts. Determined by W.A. Allen. This is a new county record. (Surles).

CORN, SORGHUM, SUGARCANE

SOUTHERN CORNSTALK BORER (Diatraea grandiosella) - NORTH CAROLINA - Statewide survey conducted during September and October 1974 to determine percent stalks infested. This pest has been observed with increasing regularity in State, and an appraisal of the population was necessary to determine pressure which it exerts on corn production. Corn is an important crop in the State with 1,570,000 acres harvested in 1974. Infested stalks averaged 4.8 percent in Tidewater counties where 1,550 stalks were examined in 62 fields sampled in 13 counties; infestation levels ranged from zero in Brunswick County to 18 percent in Pasquotank County. In the Coastal Plain, infested stalks averaged 4.4 percent, with 2,750 plants examined in 110 fields sampled in 22 Counties; infestation levels ranged from zero in 6 counties to 20.8 percent in Johnston County. The Piedmont area had the highest percent of plants infested with 4.8 percent of stalks infested of 3,000 examined in 120 fields sampled in 24 counties; infestation levels ranged from zero in 6 counties to 38.4 percent in Franklin County. In the Mountain counties where 1,250 stalks were examined in 50 fields sampled in 10 counties, no infestations were observed. No lodging directly due to Diatraea grandiosella damage was observed. (Hunt).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Remained very light with only trace populations found on wheat in northwest area. (Boyer). TENNESSEE - M. avenae and other aphids very light and spotty in small grains surveyed. (Gordon). ALABAMA - M. avenae and other species ranged from 10 to several hundred per clump of plants on all plants in 25-acre field of rye being grazed in Lee County. Although extremely heavy, expected damage not evident. (McQueen).

AN APHID (Rhopalosiphum padi) - MISSISSIPPI - Populations increased on wheat and ryegrass pastures in Oktibbeha County week ending February 14. (Robinson).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light in small grains in Archer and Baylor Counties. (Boring).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Damaged bur clover in Colorado and Gonzales Counties. Also observed in Brazos, Burleson, and Grimes Counties. (Cole). OKLAHOMA - Egg counts averaged 170 per square foot of alfalfa in Stephens County and 160 in Garvin County February 7. (Okla. Coop. Sur.). TENNESSEE - Larval "hatch-out" occurred in many central area alfalfa fields. Larvae ranged 2-30 per 50 tips in infested fields. Little or no damage anticipated at this time as alfalfa not growing, and more cold weather should kill these larvae. (Gordon). ALABAMA - Early instar larvae feeding on bur clover leaves along roadsides and in pasture in Lee County. (McQueen).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae averaged 40 per 100 sweeps in 2 alfalfa fields northwest of Phoenix, Maricopa County. (Ariz. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Continued to range up to 4 per square foot on alfalfa in Chaves and Eddy Counties. Few scattered aphids recovered at Tularosa, Otero County. Adult lady beetles and syrphid flies very active in this area. (N.M. Coop. Rpt.). ARKANSAS - Pea aphid remained very light with only trace numbers found in winter legumes in northwest area. (Boyer).

COLE CROPS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - ALABAMA - Larvae, about full grown, damaged turnips in planting at Troy, Pike County. Larvae of Microtheca ochroloma (yellowmargined leaf beetle) also present. (Dunn).

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Larvae moderate in 50 percent of a field of cabbage near Orange Lake, Marion County. (Fla. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - MARYLAND - Heavy on broccoli planting near Beltsville, Prince Georges County. (U. Md., Ent. Dept.).

GENERAL VEGETABLES

A LEAFMINER FLY (Liriomyza trifolii) - FLORIDA - Increased on celery until several hundred mines per plant observed in many commercial fields throughout Everglades area in February. Necessitated heavy trimming to prepare plants for market, with resulting loss in grade and value. Collected February 3 by M.J. Janes. Determined by W.G. Genung. (Fla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - OREGON - First eggs noted at Hood River, Hood River County, in lower elevation orchards adjacent to Columbia River February 14. (Penrose).

GREEN PEACH APHID (Myzus persicae) - OREGON - Overwintered eggs on peach beginning to hatch in Jackson County; area peach growers advised to begin dormant controls as soon as possible. (Berry).

PEACHTREE BORER (Sanninoidea exitiosa) - TEXAS - Heavy, widespread infestations reported on peach and plum in Limestone County. (Brown).

SMALL FRUITS

A TORTRICID MOTH (Platynota idaeusalis) - ARIZONA - Larvae heavy in 2 acres of strawberries in Goodyear area of Maricopa County during January. Larvae averaged 2 per plant down inside crowns; webbed leaves together. Control very difficult. (Ariz. Coop. Sur.).

ORNAMENTALS

WESTERN TENT CATERPILLAR (Malacosoma californicum) - OREGON - Egg mass counts very light on commercially grown cutleaf and clump birch and a variety of hawthorne at Sauvies Island, Multnomah County. (Sjoblom, Hemmerling).

A THRIPS (Liothrips varicornis) - FLORIDA - Adults and nymphs infested soil around trunk of Hibiscus sp. plant at Ft. Myers, Lee County. Collected December 27, 1974, by S.L. Kitto. Determined by S. Nakahara. This is a new State record. (Fla. Coop. Sur.).

ARMORED SCALES - FLORIDA - Adults of Acutaspis morrisonorum collected on some Juniperus chinensis plants at nursery in North Miami, Dade County, January 1, 1975, by D.E. Sager. Determined by G.W. Dekle. This is a new county record. Pseudaulacaspis cockerelli moderate on 15 of 150 Garcinia spicata plants examined at nursery in Fort Lauderdale, Broward County, February 7, 1975, by K.L. Tyson and D.C. Clinton. This is a new host record for State. This species also heavy on all of 224 banana shrubs

(Michelia fuscata) examined at nursery in Monticello, Jefferson County, February 17, 1975, by Q.G. Anglin. (Fla. Coop. Sur.).

A SOFT SCALE (Coccus acutissimus) - FLORIDA - Adults moderate on allspice plant (Pimenta divica) at residence in Miami, Dade County. This is new host record for State. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - CALIFORNIA - Larvae and adults infested Pinus radiata at Escondido, San Diego County; 300 female moths collected from one tree. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - TENNESSEE - Collected from pine in Nashville, Davidson County, December 14, 1974, by D. Schmitt. Determined by C.D. Gordon. This is a new county record. (Gordon).

SMALL EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OREGON - Galleries, emergence holes, and larvae noted in firewood and standing American elm trees (Ulmus americana) at two separate locations in Union, Union County, February 4, 1975. Observed and determined by R.L. Penrose. This is a new county record. Ceratocystis ulmi (Dutch elm disease) was cultured from a tree at Union in 1974, first substantiating presence of disease in county. (Penrose, Bartlett).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of two cases reported from continental U.S. during period February 9-15, both from Texas. Total of 69 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 12,093,000, all released in Texas. Total of 146,727,000 sterile flies released in Mexico. (Vet. Serv.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Adults observed on sides of buildings in Chickasaw and Monroe Counties. (Robinson).

COMMON CATTLE GRUB (Hypoderma lineatum) - FLORIDA - General on cattle in Everglades area. Averaged 14.4 per animal in backs of 34 untreated beef steers during February. Heaviest number found in one animal 35. Collected and determined by M.J. Janes. (Fla. Coop. Sur.). MISSISSIPPI - Grubs taken from backs of infested cattle in 28 of 82 counties in State since January 1, 1975. (Combs, Feb. 14). OKLAHOMA - Numbers decreasing in backs of cattle in Payne County. Currently ranged 0-10 per head. (Okla. Coop. Sur.).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Cattle lice, mostly this species, continued heavy on Comanche County cattle but only moderate populations reported in Muskogee County; very light in Payne County. (Okla. Coop. Sur.). ARKANSAS - Cattle lice, primarily H. eurysternus sufficiently heavy on cattle in Washington County for research workers to apply control measures in materials tests. (Boyer).

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) - ARKANSAS - Infestations quite variable. Sufficient infestations found in Benton and Washington Counties for research workers to apply control measures in materials tests. (Boyer).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*) - MARYLAND - Swarming reported from several counties over State. (U. Md., Ent. Dept.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

RED IMPORTED FIRE ANT (*Solenopsis invicta*) - TEXAS - Heavy infestations observed on rangeland in Fayette and Lavaca Counties. Number of reports concerning *S. invicta* and *S. geminata* (fire ant) have increased past several weeks. (Cole).

CORRECTIONS

CEIR 25(7):63 - TOMATO PINWORM (Kieferia lycopersicella) should read (K*ei*feria lycopersicella).

CEIR 25(7):70 and 74 - Status of European Corn Borer in 1974 - In second paragraph on page 70, third and fourth lines should read: "... The State average count for Wisconsin was the *second* lowest count in more than 30 years." On page 74 (Wisconsin), *the* average number of borers per 100 plants in the north-central district should read *22*.

LIGHT TRAP COLLECTIONS

ARIZONA - Mesa, 2/10-16, BL, ARMY CUTWORM (*Euxoa auxiliaris*) 1, BEET ARMYWORM (*Spodoptera exigua*) 22, BLACK CUTWORM (*Agrotis ipsilon*) 3, VARIEGATED CUTWORM (*Peridroma saucia*) 60, YELLOW-STRIPED ARMYWORM (*S. ornithogalli*) 5.FLORIDA-Gainesville, 2/14-16, BL, ARMYWORM (*Pseudaletia unipuncta*) 1, black cutworm 2, GRANULATE CUTWORM (*Feltia subterranea*) 51, SALTMARSH CATERPILLAR (*Estigmene acrea*) 2.

DETECTION

New State Records

LEAFHOPPERS (Scaphoideus spp.) - KENTUCKY - Two specimens of S. cinerosus collected at large at Henderson, Henderson County, July 10, 1948, one each by W.M. Clay and D.A. Young. Determined by P.H. Freytag. Confirmed by D.E. Barnett. Single specimens collected at large at Louisville, Jefferson County, during periods June 16-30 and July 1-21, 1954, and 6 specimens August 10, 1954, by P.J. Christian. Specimens collected in Malaise trap at Lexington, Fayette County, by P.H. Freytag as follows: 5 specimens June 13-15, one specimen June 16-18, and 3 specimens June 22-24, 1970. Determined by P.H. Freytag and D.E. Barnett. Jefferson and Fayette are new county records. Although S. cinerosus has been recorded in several adjacent States, these are the first records for Kentucky.

S. angustatus collected at large at Louisville, Jefferson County, during period July 22 to August 22, 1955, by P.J. Christian. Determined by P.H. Freytag. Confirmed by D.E. Barnett. Additional specimens of S. angustatus collected as follows: In Malaise trap at Lexington, Fayette County, during period June 11-14, 1971, by P.H. Freytag and G. Leppert; from grass in Morgan County August 8, 1971, by D.E. Barnett; at large at Lexington during period August 24-27, 1971, by P.H. Freytag and G. Leppert. Determined by P.H. Freytag. Confirmed by D.E. Barnett. Morgan and Fayette are new county records. (Barnett).

A THRIPS (Liothrips varicornis) - FLORIDA - Lee County. (p. 97).

New County Records - AN ARMORED SCALE (Acutaspis morrisonorum) FLORIDA - Dade (p. 97). ARMYWORM (Pseudaletia unipuncta) SOUTH CAROLINA - Williamsburg (p. 95). GREENBUG (Schizaphis graminum) VIRGINIA - Richmond (p. 95). PINE NEEDLE SCALE (Phenacaspis pinifoliae) TENNESSEE - Davidson (p. 98). SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) OREGON - Union (p. 98).

Comments on a Published Bibliography on the Black Cutworm, *Agrotis ipsilon* (Hufnagel)

E. L. Todd [1]

In June 1974, R.W. Rings, F.J. Arnold, A.J. Keaster, and G.J. Musick, published a paper titled "A Worldwide, Annotated Bibliography of the Black Cutworm, *Agrotis ipsilon* (Hufnagel)," in the Research Circular 198, Ohio Agricultural Research and Development Center. There are 76 pages of bibliographic citations and annotations, but even so, it was immediately apparent that many references to the species had not been included. A brief search in one afternoon located more than one hundred omitted references. There are, without doubt, many more.

Professor R.W. Rings has informed me that the bibliography was not intended to be a comprehensive bibliography and that a supplement was planned for publication in December 1974. That supplement will include the papers I located plus others that their searches have discovered. In addition, Professor Rings indicated that the supplement and all subsequent bibliograhies on other species would contain the following statements: "This publication is not intended to be a comprehensive bibliography but is believed to be complete as far as references in American abstracting journals are concerned." and "The literature search recovered some, but not all, checklists, faunal lists or comprehensive publications and texts which cannot be abstracted for the recovery of a single species." Unfortunately, the abstracting journals do not catch all new publications and because most began publication during the last 50-60 years a large mass of older literature remains uncovered. It is, indeed, difficult to search this mass of older literature for references to a species, but it must not be ignored.

Professor Rings has stated in correspondence that the bibliography on the black cutworm was intended to be a working document for applied ecologists. It is his hope that the bibliography will help to eliminate duplication of effort and to coordinate the research programs on the species that are currently in progress. These are certainly worthy goals, and I believe that the bibliography is an important contribution toward those aims. It is for those same reasons that this note is needed. Those users of the bibliography, who already possess the work, but who lack the supplementary insert, need to be alerted of its incompleteness.

---

[1] Systematic Entomology Laboratory, IIBIII, ARS, USDA, c/o U.S. National Museum, Washington, D.C. 20560.

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
25(9):101, 1975

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1974

INTRODUCTION

The summary of insect conditions, beginning in this issue, will be continued in several succeeding issues of the Cooperative Economic Insect Report. This summary was compiled by the Pest Survey and Technical Support Staff from annual summaries submitted by various State and Federal cooperators. A list of the individuals who assisted in assembling data will appear after the last section of this summary is published. The Pest Survey and Technical Support Staff appreciates the assistance of all individuals who have participated in the preparation of material for the 1974 summary.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Highlights:

ARMY CUTWORM was much heavier in Kansas wheat and alfalfa than in 1973, and early damage to wheat was severe in Montana. ARMYWORM populations in wheat and barley in Maryland were the heaviest in several years, and damaged small grains and no-till corn in Virginia. This pest caused the loss of several thousand acres of small grain in Kentucky. It heavily damaged wheat in the eastern Coastal Plain of North Carolina, was economic on small grains in central South Carolina, and heavier than in several years on wheat and oats in Arkansas. Infestations ranged moderate to heavy on small grains in Missouri, and damaged corn in the Michigan Upper Peninsula for the second consecutive year. CORN LEAF APHID was heavy in Alabama corn and posed a threat to corn in Illinois throughout the season. CORN EARWORM infestations in Virginia corn were much lighter than in 1973 and light in soybeans. This pest was generally damaging to sweet corn in the Everglades area of Florida throughout the season, and was serious on several crops in Alabama, but heavy whorl infestations in corn and sorghum in Kansas were less common than in 1973. Blacklight trap catches of corn earworm moths were the heaviest in Michigan of the past 8 years. GREENBUG was a problem in small grains, sorghum, and corn in several areas but chemical treatments and/or parasites controlled many of these infestations. POTATO LEAFHOPPER was heavy in potatoes during summer in Michigan, caused some damage to this crop in Kentucky, and caused heavier damage to peanuts in Virginia than for several years. TOBACCO BUDWORM was the major insect problem on tobacco in South Carolina and caused some damage to the crop in North Carolina.

ARMY CUTWORM (*Euxoa auxiliaris*) infestations were being reported in wheat and alfalfa by early February in OKLAHOMA. During February and March, heavy infestations of up to 10 per linear foot in wheat and 8 per square foot in alfalfa caused damage to many fields in the southwest and west-central counties and to scattered fields in the central and northwest counties and in Beaver County. Lighter numbers continued through April in most of these areas. Many fields were treated in the southwest and west-central counties of Oklahoma. Army cutworm was much heavier in wheat and alfalfa in 1974 than in 1973 in KANSAS and was troublesome particularly in some counties of the southwest and south-central districts. About 62,100 acres of wheat and 16,250 acres of alfalfa were treated in the spring. A small part of the treated acreage listed for wheat may have been treated principally for Agrotis orthogonia (pale western cutworm) at least in Greeley and Morton Counties where infestations were reported.

Light damage by army cutworm was reported in NEBRASKA wheat and alfalfa in Cheyenne, Hitchcock, Chase, Lincoln, and Perkins Counties, with counts of 1-3 larvae per square foot in most fields. One Dundy County field had 15 larvae per square foot. Light trap catches peaked June 20 at Scottsbluff, Scotts Bluff County, as moths moved to the foothills of the Rocky Mountains. Return flights were very light, peaking about August 15. Army cutworm counts of 4 per row foot on winter wheat and 2 per square foot on alfalfa were noted during early May in Campbell County, WYOMING. In the second week of May, damage and losses to wheat, alfalfa, and sugar beets were observed in Washakie and Big Horn Counties. Some fall-seeded alfalfa and sugar beet fields were destroyed. Populations and larval size varied. Treatments were applied for 14 days. During the last of May, 0.5 to 1-inch larvae infested 26 acres of new seeding alfalfa and 35 acres of wheat in Sheridan County, WYOMING.

Army cutworm infestations on winter wheat in SOUTH DAKOTA were spotty but ranged up to 10 larvae per linear row foot in Tripp, Mellette, Lyman, Jones, Haakon, Stanley, Meade, and eastern Pennington Counties. Extreme variations in larval size during late April posed questions concerning the overwintering form. Results of chemical controls were satisfactory. Army cutworm damaged winter wheat in Golden Valley, McKenzie, Slope, and Bowman Counties, NORTH DAKOTA. Damage was heaviest in Golden Valley County where an estimated 75 percent of winter wheat was infested, with up to 6 larvae per square foot evident. Some poor control results were reported. Larvae averaged 19 per square foot in Golden Valley County alfalfa. In MONTANA early damage to wheat by army cutworm during 1974 was severe in Powder River, Rosebud, Custer, Dawson, Wibaux, McCone, Lewis and Clark, Gallatin, Broadwater, Pondera, Richland, Prairie, Missoula, and Sanders Counties. A total of 150,000 acres were infested.

ARMYWORM (Pseudaletia unipuncta) larval population levels in wheat and barley in MARYLAND were the heaviest within the past several years in Caroline, Cecil, Dorchester, Queen Annes, and Talbot Counties. About 20,000 acres needed controls. Another 2,000 acres of barley in these counties had yields reduced 40+ percent. Generally, production losses ranged 5-20 percent in barley but only 3-10 percent in the heaviest infested wheatfields. The first injury in small grains appeared by May 17 and peaked the last week of May, and had subsided by mid-June. Although infestations in corn were below average in 1974, about 25,000 acres were treated in Baltimore, Carroll, Howard, Montgomery, and Harford Counties. Most of this acreage was in no-till production and received systemic insecticides at planting. Actual losses in the central area were kept to a minimum due to these systemics and less than 2,000 acres needed replanting in the area. On the Eastern Shore, losses were slightly above normal due to armyworm larvae leaving heavily infested barley and moving into adjacent corn. About 12,000 acres were treated on the Maryland Eastern Shore during the 1974 season. Armyworm moths were numerous in DELAWARE blacklight trap collections in April.

During May, larval treatments were necessary in some cereals and corn in Sussex County. Very heavy moth flights also occurred during mid to late June.

The first armyworm damage in VIRGINIA was reported May 6 from The Independent City of Virginia Beach. As damage could be expected in small grains and in no-till corn for the following several weeks, frequent checks of small grains and newly emerged corn were recommended to minimize crop losses. At Blacksburg, Montgomery County, 65 moths were collected in a blacklight trap during the week of May 3-9, and counts increased to 288 during the week of May 17-23. On June 5, a larval outbreak in a Floyd County corn crop was reported and treatments were applied. By June 7, larvae had appeared in damaging numbers in Bland and Montgomery Counties. Damage in Bland County was first noted June 2, being heavy in some fields. Many of the fields being treated at this time previously had a preplant insecticidal application. In Montgomery County, larvae averaged 50.7 and 27.8 per 25 row feet in two of the more heavily infested fields. About 15 other fields were checked May 31 and larvae estimated to range 1-5 per row foot. Damage by this pest on no-till corn had begun in Madison County May 28. Damage throughout the State was not as heavy as in previous years, but many growers of no-till corn suffered economic losses. Damage had been heavy on Lee County sod corn during the first week in June. Adults taken in blacklight traps at Blacksburg peaked the week of July 5-11 at 247, but only 17 specimens were taken July 19 and 24.

Armyworm larvae caused minor damage to corn throughout KENTUCKY, with heavier damage occurring more often in no-till fields. Infestations were heaviest in late-planted corn in regular tillage fields. Damage was slightly heavier in 1974 than in 1973. The heaviest damage was noted in the central and extreme western areas. Larvae caused moderate to heavy damage to wheat, barley, and oats in the south-central, central, and western areas, and several thousand acres were lost. Infestations were very light in eastern Kentucky. Armyworm caused much damage to lawn grasses, corn, barley, oats, wheat, and other crops in middle and western TENNESSEE during the last three weeks of May. Many grain fields in the western area required treatments.

Armyworm larvae heavily damaged wheat in at least 5 eastern Coastal Plain counties of NORTH CAROLINA during early May. About 5,000 acres of wheat were treated in Pamlico County, with an additional 1,500 acres treated in Washington, Beaufort, Pasquotank, and Hyde Counties. Wheat apparently was the most severely infested crop, as only light infestations were reported in oats, barley, and ryegrass. Economically damaging larval infestations of armyworm developed on small grains in central SOUTH CAROLINA in April. A 100-acre Allendale County field was totally destroyed in late April. Larvae were still present in late August in several counties, which is unusual. Overwintering larval populations of armyworm damaged several hundred acres of small grain in southwest ALABAMA early in the season. The first reports were received from Mobile County April 6 where 250 acres of a 300-acre field was destroyed.

Armyworm infestations were heavier in ARKANSAS wheat and oats than in several years, but were confined to the east-central and northeast areas. Infestations became economic in early May and about 6,100 acres were treated. Infestations in fescue pastures occurred in late May in Fulton and Marion Counties. About 5,000 acres of pasture were treated at a cost of $15,000. There were no production losses to small grains or pastures in Arkansas in 1974. Armyworm larvae caused scattered light damage to wheat in many areas of OKLAHOMA during May. Heavier damage and treatment of fields were reported from northern Kay County.

Armyworm larvae ranged light to moderate in fescue and orchard grass in south-central and southwest MISSOURI. Counts ranged 1-18 per square foot in late June. Moderate to heavy populations were reported from small grains in the southeast area during late May and early June, when larvae ranged 2-21 per square foot. Light to moderate populations of 1-8 larvae per square foot were reported statewide. Armyworm was only a minor problem in small grains and brome pastures in KANSAS in 1974. During mid-August, much feeding damage to lower leaves of corn was reported in scattered fields in Gray County. Armyworm was noneconomic in NEBRASKA in 1974. Larvae averaged 2 per 10 plants in one late-planted Kearney County cornfield.

Armyworm was less of a problem in IOWA in 1974. Early reports of damage in cornfields were received from eastern and central areas during the first 14 days of June. Heavy adult flights were noted during the last week of April, but expected heavy larval populations did not appear. The first armyworm moths of the season in ILLINOIS were recorded the night of May 1 in a Champaign County blacklight trap when 10 moths were taken. It is assumed moths were in flights somewhat earlier. A single one-half inch larva was swept from alfalfa May 2 in Fayette County. Larval populations peaked during the last week of May, but averages never reached 4 per 10 row feet even in the traditionally more heavily infested southwest and west-southwest districts. Occasional heavy concentrations developed which resulted in 30,000 acres of wheat being treated saving growers about $120,000 over and above treatment costs. Armyworm larvae were present in some southwest INDIANA grain fields by May 24. The only reported crop damage was to a cornfield in Owen County, double-cropped on wheat stubble. Moths were in flight by the first week in April. Heavy flights were noted at the beginning and end of May and at the end of June in Tippecanoe County.

Armyworm larvae appeared in damaging numbers on corn in several Upper Peninsula counties of MICHIGAN, but were at low levels on the Lower Peninsula. This is the second consecutive year this pest has been a problem on the Upper Peninsula. First moths were taken at the Lenawee County blacklight trap April 12, about 7 days earlier than 1973. Favorable temperatures resulted in a total blacklight collection of 202 moths with 50 percent being females. Moth samples continued moderate until the week of June 18-24, when 313 were collected in Lenawee County. Field problems however were negligible. All blacklight stations in Michigan continued to show light moth activity until frost. Armyworm moth catches were heavy in WISCONSIN blacklight traps in mid-July, but no significant larval counts were noted in corn.

Moths were active from April 20 through September 30. There were no economic armyworm populations observed in any part of MINNESOTA. Only traces of larvae could be found late in the growing season. Extremely dry weather in most areas prevented the formation of lush conditions favorable for hatch and growth.

Only 5 armyworm moths were caught in blacklight traps in MAINE in 1974 and only two 20-acre cornfields were somewhat damaged in the pretasseling stage. One field was treated. Large flocks of blackbirds and grackles apparently consumed the larvae thus eliminating any potential problems. Armyworm activity was reported from several areas in NEW YORK on no-till corn. During mid and late July, larvae averaged about 20 per 50 row feet in a 40-acre Yates County field and averaged six per plant in a 5-acre Livingston County field. Populations were heavy in three fields at Tyre and Seneca Falls, Seneca County. Larvae fed on 50 percent of the plants, stripping about 10 percent of these plants to the midrib, in a field in the Champlain Valley in Clinton County. Armyworm larvae damaged potatoes and some tomato fields in the San Joaquin Valley, Fresno County, CALIFORNIA. Also damaged bean plantings in several counties.

ASTER LEAFHOPPER (Macrosteles fascifrons) transmitted aster yellows to 30-50 percent of the lettuce of one planting date in the Stockbridge area, Ingham County, MICHIGAN. This caused almost total loss of that planting. It is felt that 1 or 2 critical spray applications were missed, thus allowing the infection to become established. The loss of celery to aster yellows was not excessive, but in carrots and particularly onions much loss occurred.

Aster leafhopper counts were unimpressive early in the season when first migrants appeared in southwest WISCONSIN April 30, and in the central area May 1, with counts remaining below normal at less than 10 adults per 100 sweeps. By the end of May, adults had increased to 30 per 100 sweeps in the southwest. Nymphs appeared in low numbers in mid-May but rapidly increased by early June, especially in Sauk County winter grain where counts up to one per sweep were made. In June, counts in most spring grain remained below 30 per 100 sweeps. Counts were again heaviest in the southwest with 72 per 100 sweeps, a mixture of migrant and spring adults. While migrant counts were below average, the hatch from overwintering eggs on winter grains was above normal due to the fairly mild winter. With an aster-yellows disease incidence of 4 percent in the migrant population, many weeds along ditchbanks, fence rows, and tree rows became infected, adding innoculum to winter annuals, perennials, and biennials infected in 1973. Numerous native leafhopper adults fed on infected weeds and the infection level within successive leafhopper populations increased from 2.5 percent May 24 to 10-12 percent July 19. Leafhoppers taken from infected weeds around susceptible crops September 13 contained an infection rate of 33+ percent. Losses to lettuce and carrots were above average, with losses in some fields reaching 40 percent of plants showing various stages of infection. Damage to other susceptible crops in Wisconsin was minimal in 1974 due to the infection level being low early in the season when these crops were most susceptible.

Aster leafhopper first appeared in MINNESOTA about mid-May. By the last of May, heavy populations of spring migrants were moving north. Vegetable growers were alerted as populations ranged 500-1,200 per 100 sweeps. Heavier populations persisted into mid-June in the north-central counties of the cropping areas, peaking out around July 1. Light populations were encountered for the remainder of the season. Spring migrants of aster leafhopper were evident in NORTH DAKOTA by May 10 in Cass, Ransom, and Richland Counties at 8 per 100 sweeps in roadside grasses. Migrants were found in winter wheat and rye in Adams, Hettinger, and Stark Counties by May 24. Populations in Richland County had increased to 80 per 100 sweeps in wheat by June 14. Economic infestations of adults and young averaged 1,000 per 100 sweeps in barley by July 19 in Cass, Traill, Grand Forks, and Richland Counties. Scattered moderate to heavy aster leafhopper infestations were present in wheat in a few west-central and central counties of OKLAHOMA during October.

CORN LEAF APHID (*Rhopalosiphum maidis*) infestations in MAINE were first noted the week of July 15, seven days later than in 1973. Populations increased slowly and peaked the week of August 29. During the week of September 9, fungus and parasites caused almost a complete collapse of the population. Some cornfields were almost entirely free of aphids even though not too far from infested fields. Lady beetle populations were the heaviest in 10+ years in heavily infested cornfields. Generally, three species were found in all such fields. In one field at Bethel, Oxford County, 6 species of lady beetles were found. *R. maidis* caused some damage and loss to some of the heavily infested corn. The overall loss due to corn leaf aphid in Maine is estimated to be 4 percent and a 240,000-dollar loss to dairymen who grow about 40,000 acres of silage corn.

Light corn leaf aphid populations were observed on corn in Monroe County, NEW YORK, as of July 23, and severe damage was reported on Style Pack variety corn in Ontario County in late August.

Corn leaf aphid caused very few problems for corn producers in MARYLAND. An estimated 2,500 acres required controls during July and early August in Dorchester and Wicomico Counties. Populations in 1975 are not expected to cause serious problems unless an extended dry period occurs in July.

Corn leaf aphid was common on sorghum in some Jackson County, FLORIDA, fields in July. Populations were heavy throughout the 620,000 acres of corn grown in ALABAMA. Maize dwarf mosaic was quite general in parts of the northern end of the central area. The center of the most severely infected area was Shelby County. *R. maidis* is the suspected vector. Corn leaf aphid infestations in ARKANSAS were similar to those of 1973 and somewhat below average. *R. maidis* is most common in young sorghum whorls in early summer and seldom, if ever, economic. Infestations in sorghum heads are rare in Arkansas. There were no losses observed in the State in 1974.

Corn leaf aphid was first reported in light populations on corn in eastern IOWA during the week ending July 19. Populations ranged up to 100 per ear on corn in the northern area during early August. Light to moderate infestations were reported on western fields during the week ending August 16. Corn leaf aphid posed a potential threat to corn in ILLINOIS for most of the season due to the midsummer drought experienced in most areas. The expected severe problems never materialized, however. Treatments were applied to 201,000+ acres saving growers about $1,409,000 over and above treatment costs. Rhopalosiphum maidis infested about 11 percent of the corn grown for grain in INDIANA by the first of August as compared with 9 percent in 1973. Most infestations were light (9.85 percent). By the time of the fall corn insect damage survey, 26 percent of the corn was infested, a decrease from the 33 percent in 1973. Of this total, about 4 percent was heavily infested, 5.5 percent moderately, and 16 percent lightly. The heaviest infestation was noted in the north-northwest and northwest districts, the least in the south-southwest. Because of the drought, aphids were probably a more serious problem than in past years.

Winged forms of corn leaf aphid were noted in several WISCONSIN counties and small colonies were noted in advanced corn in Dane County by July 10. Development was rapid and by July 17 a few fields in the central Sands area had colonies of 300-400 aphids on up to 50 percent of plants. Predators, such as syrphid fly larvae, lady beetle larvae and adults, green lacewing larvae, and Orius insidiosus (a flower bug), were numerous in infested fields. Heaviest corn leaf aphid populations were found in the central Sands area and in west-central counties, but no interference with pollination was noted. There was much concern about this insect by many individuals and some treatments were made, but observation showed no apparent damage in those fields surveyed.

Corn leaf aphid infestations in NORTH DAKOTA were heavy in late-seeded barley in the east-central, northeast, and north-central districts. In Cass, Traill, and Grand Forks Counties, 50 percent of the barley was infested with up to 150 individuals per 100 sweeps. Many late-seeded fields were plowed under. Light noneconomic populations of corn leaf aphid (200-400 per whorl) were noted in scattered sorghum fields in the southern half of NEBRASKA during late June and July. Treatment was applied in one Clay County field.

Corn leaf aphid was generally heavy in scattered fields of whorl-stage sorghum in KANSAS throughout most of July. Much treating was done, in part due to the concern of growers that greater-than-usual damage was being done to dryland sorghum because fields were in a drought-stressed condition during July. Estimates indicated that about 145,000 acres of sorghum were treated in 1974 with most treatment done in the northeast, southeast, and southwest districts. An estimated 32,550 acres of corn, most in the southwest district, were also treated. Corn leaf aphid infested sorghum from mid-May to mid-August in OKLAHOMA. Counts were light to moderate in most areas most of the season but scattered heavy infestations were reported in Pittsburg County in late May, Caddo County in late June and early August, Washita County in early August, Grady County in mid-July, Texas County from mid-July to mid-August, the southwest counties in late July, and in Coal County in early August.

CORN LEAF APHID caused concern on corn in the Deming area of Luna County, NEW MEXICO. In late July, 150 per plant were reported from Chaves County. This aphid was heavy and damaging during September in several Weber County, UTAH, cornfields. It also damaged spring barley in several Beaver and Millard County fields. Corn leaf aphid was general on corn in CALIFORNIA, being severe in some areas.

First CORN EARWORM (*Heliothis zea*) moths of the season in DELAWARE were taken in blacklight trap collections in Sussex County June 7, but populations did not noticeably increase until late July through early August. During late August through early September, moths ranged 50-80 per night in Sussex County blacklight trap collections. Larval infestations in late sweet corn were heavy. A single adult was taken the week of May 10-16 from a blacklight trap at Blacksburg, Montgomery County, VIRGINIA. The population increased to 3 the week ending May 23. A few eggs had been laid on corn silks in Isle of Wight County July 2 although populations were very light. Larvae were light in that county July 24 and most were fifth instar, although some third and fourth instars were found. During the week of July 29 to August 2, 8.6 percent of 750 ears in 30 cornfields in the Tidewater region were infested. In fields south of the James River, 10.8 percent of the ears were infested, which was 25 percent as heavy as the previous year at 41.3 percent. In the Middle Peninsula, 14 percent of the corn was infested compared to 39.4 percent in 1973. Infestation in the Northern Neck was 1.2 percent of the ears as opposed to 18.7 percent in 1973.

Prior to August 15, no corn earworm infestations in soybeans had been detected in VIRGINIA. Most larvae had left corn to pupate or had emerged. By August 23, larvae were appearing in Isle of Wight County. A sample of 28 fields showed an average of 0.7 larva per 30 row feet. Larvae were young but no fields had populations normally requiring treatment. Populations were predicted to be light this year. No larvae were found in Westmoreland County (30 fields, 670 acres), none of the 58 fields surveyed required treatment. Adults at Holland had increased significantly, totaling 165 moths for the nights of August 17-19 Larvae appeared in Westmoreland County by August 28. A sample of 28 fields (666.5 acres) in Isle of Wight County showed an average of 1.5 larvae per 30 row feet, but none of the fields had populations normally requiring treatment. In Westmoreland County, larvae averaged 0.4 per 30 row feet in 30 fields (670 acres). None of the 58 fields surveyed required treatment. Fourth and fifth-instar larvae were present in three fields by September 5 in Greenville County, averaging 9, 20, and 1 per 3 row feet. Damage to the first 2 fields was severe with almost complete crop failure. This was the first report of economic damage in the State in 1974. A sample of 28 fields September 13 in Isle of Wight County showed an average of 1.8 larvae per 30 row feet. In Westmoreland County, larvae averaged 2.2 per 30 row feet in 30 fields (670 acres). None of the 58 fields surveyed required treatment.

Corn earworm larvae began appearing in south and eastern Coastal Plain area soybean fields of NORTH CAROLINA August 2-9. Light-trap data revealed the annual flight which oviposits on soybeans began during late July. A survey in Duplin, Sampson, Cumberland,

and Harnett Counties August 20-22 revealed second, third, and fourth-instar larvae while samples the same week in Wilson, Edgecombe, Martin, and Washington Counties revealed first and second-instar larvae. About 50 percent of 15 open canopy fields examined in the southern counties were at threshold levels. Threshold levels had not been reached in northern counties by August 22. Disease incidence was heavy in most fields reducing most larval populations below threshold levels before larvae had reached the damaging fourth-instar. The heaviest losses of 1974 occurred in the northern Coastal Plain in Franklin, Nash, Halifax, Northampton, Chowan, and Bertie Counties. Surveys August 26-29 in these counties revealed populations of 5 fourth through sixth-instar larvae per row foot. About 50 percent of the 25 fields examined in the area were at threshold. Pupation was about complete over the Coastal Plain by September 13. Reports from the more heavily infested northern counties indicated a heavy demand for soybean aerial treatments September 9-15. Many growers treated again after the larvae had pupated in the soil.

Corn earworm larval infestations caused some economic damage to commercial tomatoes in the coastal section of SOUTH CAROLINA, and damaged sweet corn in all sections of TENNESSEE during the season. Corn earworm was generally destructive to ears of sweet corn in the Everglades area of Collier County, FLORIDA. Sprays were needed throughout the year. This was the third consecutive year with an unusually mild winter and there was winter slowdown in the activities of this species. During late May, 200 acres of silage corn were heavily damaged at Chipley, Washington County. Heliothis zea was very light on corn during spring at Bradenton, Manatee County, and seldom reached economic levels on northern area soybeans thereby following the trend of previous years. H. zea was very light, 0-1 per 50 tomato and pepper plants, during spring at Immokalee, Collier County, and on tomato during spring and fall at Bradenton. H. zea was one of several low level species on crucifers at Hastings, Saint Johns County.

Corn earworm larvae were widespread and damaged pretassel corn and sorghum and ear corn in the milk and dough stages in ALABAMA. First-generation larvae were noted on crimson clover, vetch, and other winter legumes in March and April. Corn and grain sorghum supported generations which, in turn, caused later generations to be serious on peanuts, soybeans, cotton, tomatoes, and other crops. Preliminary estimates of damage and control costs to the 620,000 acres of corn and 33,000 acres of grain sorghum will approximate 8 million dollars. Corn earworm was of less economic importance on soybeans in Alabama during 1974 than in 1973 and the past 5 years. Of 1,020,000 acres for harvest, only about 300,000 acres in the southwest area were treated. Corn earworm and Heliothis virescens (tobacco budworm) were the most serious pests of the 630 acres of tobacco grown in Alabama. Extremely active control efforts by growers kept these pests under good control. H. zea was the more important pest of tomatoes throughout the season in home gardens and commercial plantings. All fields received 15 or more treatments at a cost of 75 dollars per acre.

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.

   Soil samples shipped to approved laboratories do not require attachment of certificate or permit.**

   Compost, decomposed manure, humus, and peat are exempt*** if dehydrated, ground, pulverized, or compressed.

2. Plants with roots, **except** houseplants grown in the home and not for sale, soil-free aquatic plants, moss, and Lycopodium (clubmoss or ground-pine or running pine).

   Transplants are exempt if substantially free of soil.****

3. Grass sod.

4. Plant crowns and roots for propagation.

5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.

   True bulbs, corms, rhizomes, and tubers (other than clumps of dahlia tubers) of ornamental plants are exempt*** if free of soil.

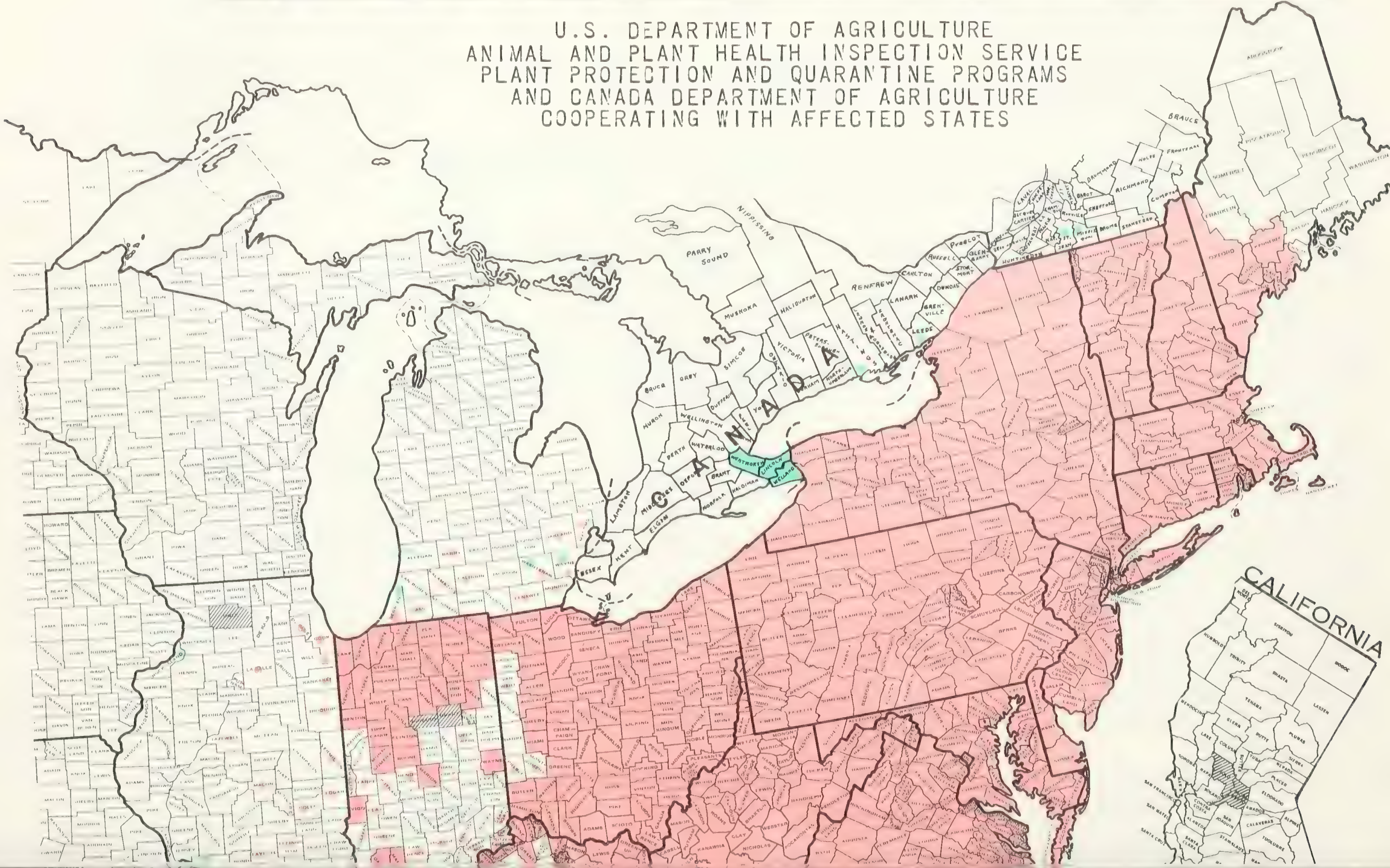
6. Used mechanized soil-moving equipment.

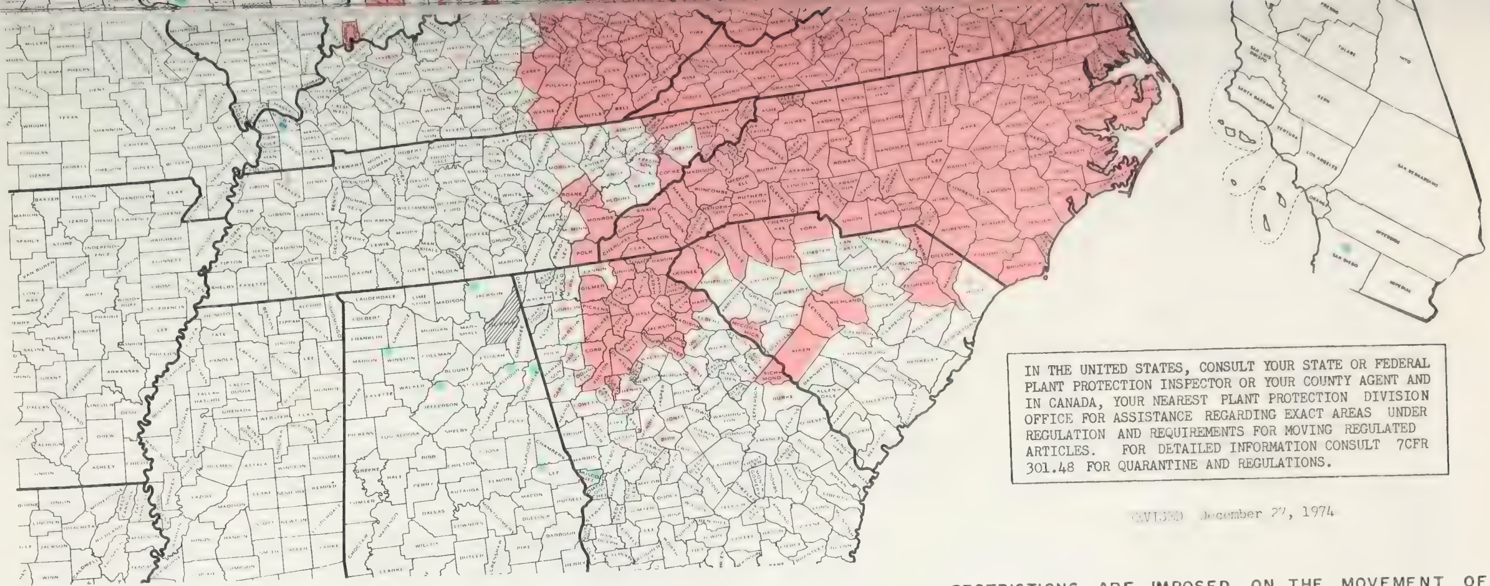
   Used mechanized soil-moving equipment is exempt*** if it has only compacted soil or is cleaned of all loose, non-compacted***** soil.

7. Any other products, articles, or means of conveyance of any character

JAPANESE BEETLE QUARANTINES

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
AND CANADA DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES





IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT AND IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES. FOR DETAILED INFORMATION CONSULT 7CFR 301.48 FOR QUARANTINE AND REGULATIONS.

REVISED December 27, 1974

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;
COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

● GENERALLY INFESTED AREA - STATE AND FEDERAL REGULATIONS.
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED.)

● SUPPRESSIVE AREA - STATE, FEDERAL, AND CANADIAN REGULATIONS.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

● STATE REGULATIONS ONLY.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS)

▨ ERADICATED - REGULATIONS REMOVED.

RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN°.
5. BLUE INTO ANY OTHER AREA°°.

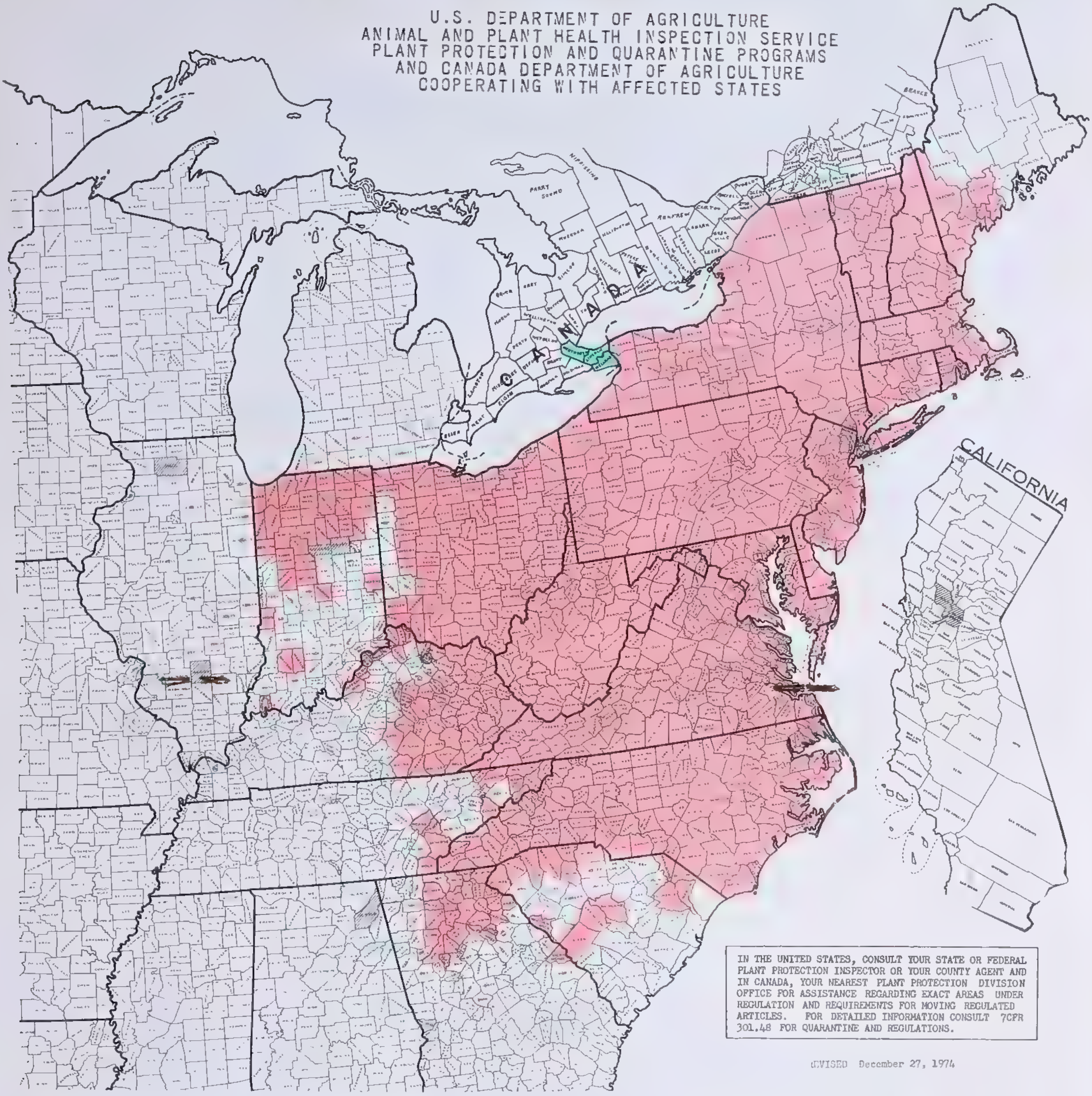
°WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

°°ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES

JAPANESE BEETLE QUARANTINES

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
AND CANADA DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES



IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT AND IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES. FOR DETAILED INFORMATION CONSULT 7CFR 301.48 FOR QUARANTINE AND REGULATIONS.

REVISED December 27, 1974

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;
COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

🟥 GENERALLY INFESTED AREA - STATE AND FEDERAL REGULATIONS.
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED.)

🟩 SUPPRESSIVE AREA - STATE, FEDERAL, AND CANADIAN REGULATIONS.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

🟦 STATE REGULATIONS ONLY.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

⬜ ERADICATED - REGULATIONS REMOVED.

RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN*.
5. BLUE INTO ANY OTHER AREA**.

*WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

**ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES tor that they present a hazard of spread of the Japanese beetle and the person in possession thereof has been so notified.

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:*

1. Bulk soil.

2. Used mechanized soil-moving equipment.

   Used mechanized soil-moving equipment is exempt*** if it has only compacted soil or is cleaned of all loose, non-compacted***** soil.

3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the Japanese beetle and the person in possession thereof has been so notified.

* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

** Information as to approved laboratories may be obtained from an inspector.

*** Exempt if not exposed to infestation after cleaning or other prescribed handling.

**** Not sufficient soil to harbor Japanese beetle larvae.

***** Compacted soil is defined as soil attached to equipment which cannot be removed by brisk brushing or washing with water, or both, under normal city

Corn earworm was a minor sorghum pest in ARKANSAS. Infestations were very light in 1974 and no treatments were known to have been applied. Infestations in Arkansas soybeans were extremely light, similar to 1973. About one-half million acres were treated annually during the period 1960 to 1974 for this pest. There was no loss to soybeans observed due to reduced production in 1974, but cost of control was estimated to be about 100,000 dollars. First corn earworm larvae in MISSISSIPPI appeared on ears of corn grown for grain on 160,000 acres and 40,000 acres for silage in mid-June in Noxubee and Oktibbeha Counties. At this time, 90 percent of the ears were infested in most fields. Populations continued to increase and by mid-July, larvae averaged 1.2 per ear on corn grown for grain in Grenada, Yalobusha and Noxubee Counties.

Corn earworm infestations were reported from early May to late October in OKLAHOMA. Infestations were generally light in alfalfa and light to moderate in sorghum. Scattered heavy infestations were reported in corn in June and in Texas County in mid-September. Larvae ranged 10-20 per row foot in scattered peanut fields in Marshall, Hughes, Caddo, and Washita Counties in mid and late August. Counts reached one per row foot in scattered soybean fields in Wagoner, Muskogee, and McCurtain Counties in August and September.

Heavy whorl infestations of corn earworm in late corn and sorghum in KANSAS were much less common in 1974 than in 1973. Most damaging whorl infestations were reported in the south-central and southwest districts, and sometimes mixed populations of H. zea and Spodoptera frugiperda (fall armyworm) were involved. The 1974 fall loss survey showed kernel loss due to H. zea to have been greatest in the central and south-central districts (5.1 and 2.2 percent, respectively) and the lightest in the western district (0.3-0.7 percent), generally following the 1973 pattern. Very little damage to grain in sorghum heads due to feeding was reported in 1974. Soybean pod damage due to feeding was minimal in 1974, with only about 1,500 acres treated in Crawford County. Corn earworm infestations were very light throughout NEBRASKA in 1974.

Corn earworm first and second-instar larvae ranged 2-5 in whorls of milo in Eddy County, NEW MEXICO, during mid-August. Counts up to one per corn ear were common by September 1 in Torrance and Valencia Counties. Along the Pecos River, light to moderate outbreaks occurred with treatment applied in some fields. Corn earworm injury to corn was unusually light in the central and northern counties of UTAH and moderately injurious in the southern counties.

Corn earworm infestations were general and varied throughout the season in CALIFORNIA. This pest was probably more damaging to beans than in past years. Corn earworm infestations in experimental corn in Adams County, WASHINGTON, averaged 7.8 percent for most varieties planted May 3, 35.4 percent in corn planted May 23, and 67.7 percent in corn planted June 12. Blacklight trap catches in the Prosser area, Benton County, and nearby lower Yakima County ranged 1-2 per night, whereas in past years of heavy infestation, hundreds were caught each night. Corn earworm was slightly below normal in IDAHO, but still heavy enough to damage untreated sweet corn seed. Larvae peaked on silking corn August 16 with 100 percent of the ears damaged by 190 larvae per 100 ears. For comparison, populations in 1971, 1972, and 1973 peaked at 247, 287, and 250 larvae per 100 ears, respectively. Populations reached their heaviest rate of 1974 in the Twin Falls area of Twin Falls County August 22 at 5 percent infestation.

The most notable fact concerning corn earworm in WISCONSIN was that it failed to appear in significant numbers, even in latest sweet corn. Cool August temperatures were responsible for the poor development of this pest. First moths of the season at Arlington, Columbia County, appeared about August 26. Moth catches were relatively heavy at Arlington in September, but only trace numbers of larvae could be found in corn. Moths were taken at Arlington until the end of October. Blacklight trap collections of corn earworm in MICHIGAN were the heaviest of the past 8 years. Sporadic specimens were taken in Monroe and Lenawee Counties. One moth was reported during the period July 23-28, which was 2-3 weeks earlier than usual. However, no more moths were taken in light traps until about the first of September. This individual collection pattern continued for the remainder of the growing season and sweet corn growers experienced no problems. This was a very unusual season for this serious pest and damage was correspondingly light.

Corn earworm larvae were first observed in sweet corn August 2 in Ulster County, NEW YORK, and were readily found in many cornfields throughout Ulster County by September 13. The first moths of the season in Ontario County were taken in light traps August 20. There were no corn earworm moths trapped nor any larvae officially identified in corn ears but some were present. This was the lightest infestation in many years. No evaluation or estimate was possible on the use or benefits of insecticides on sweet corn production.

GREENBUG (Schizaphis graminum) ranged 100-300 per linear foot on midwinter wheat in Eddy County, NEW MEXICO. By February 1, wheat showed moisture stress and populations decreased to 25-30 per linear foot in Quay, Roosevelt, and Curry Counties. By February 15, infestations on barley ranged 8-12 per linear foot in Chaves County. On March 1, greenbug averaged 200 per linear foot on barley and up to 200 in adjoining trial plantings near Artesia, Eddy County. Control attempts in Curry, Quay, Harding, and Union Counties probably substantially reduced potential parasite populations, for no parasites were recovered at that date. Near the end of March, greenbug populations in Roosevelt and Quay Counties were reduced to 0-15 per linear foot. Parasite activity in these fields was suspected to be responsible for this reduction. Greenbug first appeared in corn in mid-July in Luna County, New Mexico. Populations then began increasing in Curry and Roosevelt Counties by late July. Treatments were generally ineffective. Up to 20 per leaf were reported in mid-August on sorghum in Roosevelt County.

Light greenbug populations were noted on grain sorghum in south-central TEXAS during the week ending April 5. By April 19, heavy infestations were reported in Houston County. Light activity was reported in most south-central and central counties by mid-May.

Greenbug appeared on grain sorghum in the Blacklands, Rolling Plains, Trans-Pecos, and San Angelo areas during June. By mid-June, infestations were light in the South Plains, and by mid-July, populations were increasing throughout the High Plains. Resistance to organo-phosphorous insecticides was noted at scattered locations in the High Plains during 1974. By August 15, populations decreased to low levels in the Rolling, South, and High Plains due to beneficial insect activity. Greenbug on wheat and other small grains in Texas remained light in the Panhandle, Rolling Plains, and north-central areas due to drought. The heaviest infestations were reported in late January in Brisco and Hall Counties where counts reportedly ranged up to 500 per linear row foot. Infestations were suppressed in early February due to extremely cold weather. Counts generally ranged 10-200 per linear foot throughout the Panhandle and Rolling Plains areas during winter and spring. Schizaphis graminum was held in check by parasitic wasps, lady beetles, nabids, flower bugs, lacewing larvae, and spiders. Some treatments were applied to isolated fields throughout much of the Rolling and High Plains areas during 1974. Generally light infestations ranged 50-100 per linear row foot on emerging small grains in the Panhandle and Rolling Plains area late in 1974.

Greenbug infestations were light in a small percentage of sorghum fields surveyed in ARKANSAS. In a large percentage of fields, light feeding signs were noted but no specimens found. Predators aided in reducing or eliminating populations. No economic loss to sorghum by greenbug noted in 1974. Specimens were taken on sorghum in Lincoln County for a new county record. First occurrence of greenbug this season on small grains was observed in northwest ARKANSAS February 15. Regular systematic surveys were not conducted as this species is generally a minor pest in the State. Oats and wheat, especially fields with yellow or red plants, were surveyed in Lonoke and Prairie Counties where populations were light in early March because of increased interest in the problem of barley yellow-dwarf virus being transmitted in small grains by this species. Surveys were increased in fall 1974 and are to be continued in winter and spring 1975. Greenbug was light on sorghum throughout MISSOURI during late July and early August. The heaviest infestations were noted in the northwest area during mid-July. Chemical treatments were applied.

Greenbug counts in wheat in early and mid-January ranged 200-400 per linear foot in scattered fields in southwest and west-central OKLAHOMA, but were already beginning to decline in most areas. Parasites were active in the southwest area by mid-January, the west-central area by mid-February, and the Panhandle area by early March. Infestations gradually declined during February and March, with serious damage reported only from a few southwest and west-central counties. Infestations had mostly disappeared by the end of March. Fall infestations were first reported from Washita County in early October. By early November, infestations were widespread in the western half of the State. Scattered heavy infestations were reported in Comanche, Harper, and Beaver Counties but counts in most areas averaged 40 or less per linear foot. Greenbug was present on sorghum by early May in Love County but was not reported from other areas until early June. Heavy infestations of 2,000-5,000 per leaf were present in west-central

Oklahoma from mid-July to early August and the Panhandle area in August. Parasites and predators caused populations to decline in both areas and most infestation had disappeared by early September.

Damaging greenbug infestations were not as common on KANSAS sorghum in 1974 as in 1973 and affected fields were more scattered. Damaging early season infestations were most common in the north-central district and late season in the central, north-central, and southwest districts. Alate flights first occurred in early May in Ellis County according to sticky trap catches and alates were trapped regularly at least until late May. During mid-May, spotty heavy infestations were reported on seedling sorghum in Ellis and Harvey Counties and in Bourbon County in late May. Damaging infestations on seedling sorghum were reported in several north-central counties in early June. Heavy rains occurred over most of the State during the second week of June and significantly reduced seedling infestations. Following these rains, no significant buildups were generally noted until early July, when populations increased rapidly in certain Nemaha County fields. By the third week of July, infestations had increased sharply in sorghum in the northeast and north-central districts and southern counties of the southwest district with little parasitism by Lysiphlebus testaceipes (a braconid wasp) noted.

During late July and early August, some heavy greenbug infestations persisted in the northeast, north-central, and southwest districts of Kansas with economic infestations beginning to occur in some fields in the central and southwest districts. Some buildups occurred in scattered fields in the west-central and northwest districts. By mid-August, L. testaceipes was bringing greenbug under control in most fields in the east-central, northwest, and west-central districts. Significant populations of this parasite were being found in certain fields in the northeast, central, and north-central districts but were giving little relief in the southwest district. Principally through the action of L. testaceipes, greenbug was under control in all affected areas by the end of the third week of August. Lady beetles, building up earlier on Rhopalosiphum maidis (corn leaf aphid), were more helpful than usual in controlling greenbug in sorghum in 1974. Estimates indicated that about 396,200 acres of sorghum received a planting time soil treatment before July 1. Foliar treatments made after July 1 involved an estimated 333,250 acres. An estimated 883,020 acres of Kansas sorghum were treated in 1974.

Greenbug alates migrated into grain sorghum in NEBRASKA almost immediately after seedling emergence. On June 5, infestations ranged 0-8 per plant in 140 Clay County fields, with 35 percent of the plants infested. Populations were reduced significantly the following week due to heavy rains. On June 12, greenbug ranged 0-30 (average 0.3) per plant on 12 percent of the plants in 208 Clay County fields. After mid-June, rainfall ceased and populations increased gradually. Maximum counts were observed from July 28 through August 9. Populations ranged 0-7,500 (average 454) per plant, in 370 Clay County fields surveyed July 31. From mid-July through August, dryland grain sorghum in the State was under severe drought stress. Many fields did not bloom until mid-August. Many plants had lost 1-4 leaves from drought related injury. Treatment decisions for *Schizaphis graminum*, even at relatively light levels, were extremely complicated. *Lysiphlebus testaceipes* (a braconid wasp) reduced greenbug populations in some fields but was of negligible value in most fields until August 15 to 20. Parasitism averaged only 3 percent on the same date in 1973. Parasites had eliminated greenbug in grain sorghum in the east, south, and southeast districts by August 30. *S. graminum* was active in winter wheat in Polk, Clay, Sioux, Banner, Box Butte, and Scotts Bluff Counties in mid-September and October. In November, economic damage was reported in single fields in Burt and Richardson Counties, Nebraska.

Greenbug activity on forage sorghum was first noted July 19 in northwestern IOWA. Reports of damage from two western counties were received through August 7. Treatments were required for moderately infested sorghum. Greenbug was noneconomic in grain fields in the southwest and northwest districts of MINNESOTA. Grain was well matured and damage was negligible. Greenbug is a pest of small grains in MICHIGAN on rare occasions. This aphid was found infesting sorghum July 28 for the first time in the State.

Greenbug was a serious problem on sorghum in Lyman, Tripp, Charles Mix, and Davison Counties, SOUTH DAKOTA. Specimens resistant to the chemical treatment used were discovered in Charles Mix County in mid-August and later in other sorghum-producing areas. Populations were noneconomic on spring and fall winter wheat. Greenbug was present in most spring wheatfields but rarely caused economic damage in 1974. Reduced activity was associated with the buildup of beneficial insects. Greenbug was widespread and heavy in the east-central, northeast, and north-central districts of NORTH DAKOTA by July 19. In Cass, Traill, Grand Forks, and Richland Counties, 90 percent of wheat was infested with up to 600 aphids per 100 sweeps. Damage was evident in late-seeded wheat in Traill and Grand Forks Counties. Barley fields in these counties were 57 percent infested with up to 150 aphids per 100 sweeps. Lighter infestations of 10 per 100 sweeps were evident in Morton, Grant, Hettinger, and Adams Counties.

Greenbug, although rarely found in MONTANA, heavily infested a late field of barley in Dawson County in 1974. Greenbug was a severe problem on winter wheat and barley during fall 1974 in WASHINGTON. It caused moderate to severe damage in many areas including the original area of Klickitat County. Damage was light to moderate in Benton County but later reports indicated much concern in Adams, Lincoln, Whitman, Spokane, Franklin, Grant, Douglas, and Walla Walla Counties. Much treatment was made in most of these counties. The infestations were probably due to the unusually extended warm and dry fall. Damaging greenbug populations were present on early emergent wheat and barley (planted the last week of August and first week of September) in eastern OREGON counties bordering the Columbia River for the first time in fall 1974. An estimated 3,000-5,000 acres in Sherman, Gilliam, Morrow, and Umatilla Counties received treatment. Sudan and milo plantings were infested in Morrow County. Greenbug was serious on young milo plantings in CALIFORNIA during the 1974 season.

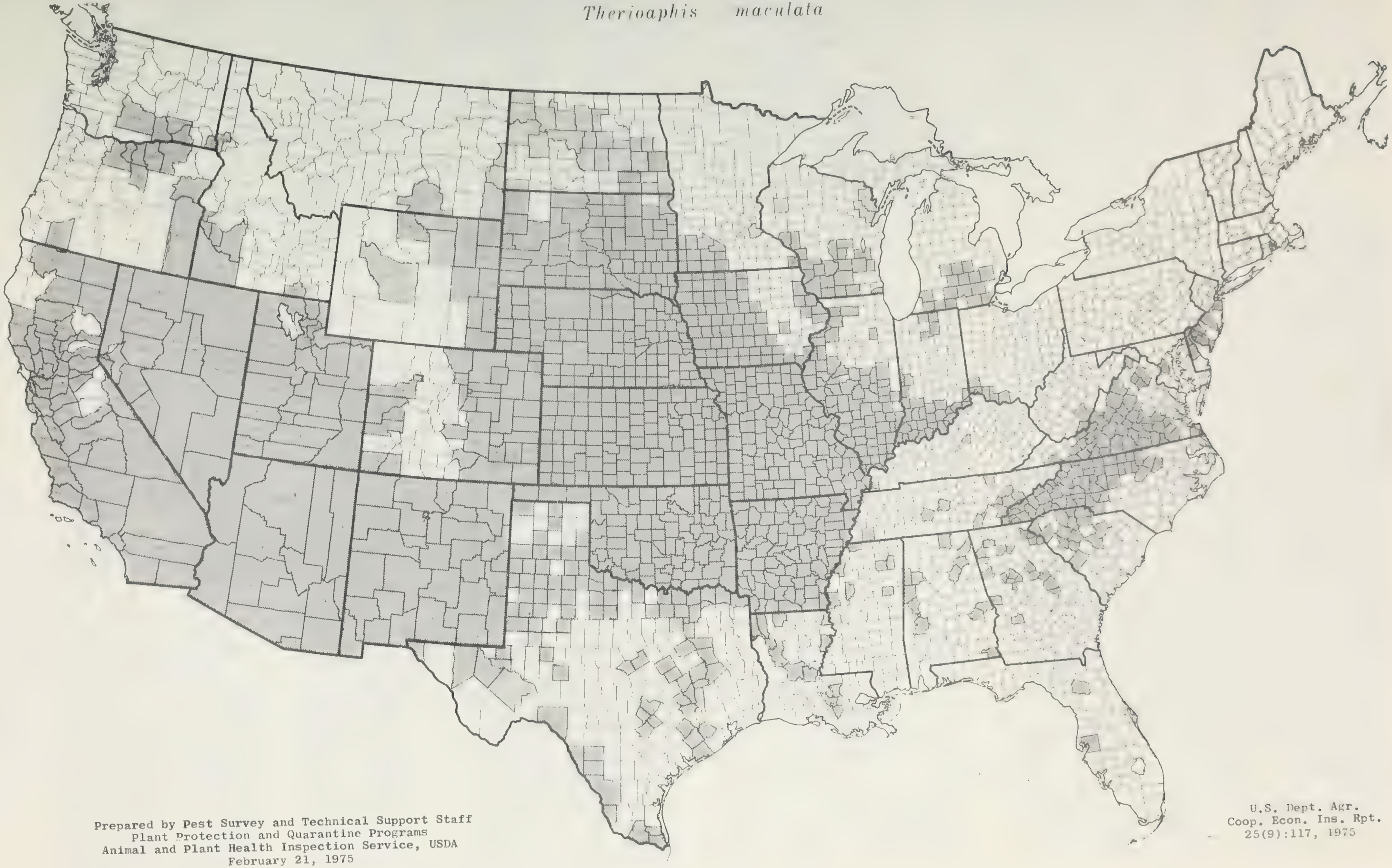
The heaviest POTATO LEAFHOPPER (Empoasca fabae) populations on alfalfa in MINNESOTA were found about the end of June. Counts ranged 500-800 per 100 sweeps in some cases. The early first cutting of alfalfa came before any noticeable damage occurred. After this, populations decreased and no economic infestations were found during the rest of the season. Potato leafhopper migrants appeared in many WISCONSIN counties by May 15. Nymphs were first observed about June 26 in Rock County alfalfa. Populations were light throughout the season, except in a few sandy areas during the hot weather of July when up to 55 per sweep were noted in alfalfa near Brodhead on the Green and Rock County line. In most fields elsewhere, populations ranged 2-3 per sweep and seldom exceeded 5 per sweep. Very few fields showed yellowing due to this pest and no treatment was reported.

Potato leafhopper counts of 10 per 25 sweeps in soybeans were normal across Wisconsin in June, but averaged up to 1 per sweep June 11 in the Trempealeau area of Trempealeau County. In early August, counts ranged 1-2 per sweep over most of the State except in Dane, Sauk, and Rock Counties, where high counts of 4 per sweep occurred the week of August 5. Nymphs appeared in early August. By the second week in September, counts seldom exceeded one per sweep in soybeans, partially due to the cool weather at that time. Potato leafhopper was very light in potatoes and beans into mid-June with under 10 per 50 sweeps common in southern and central Wisconsin. Counts remained light (less than 1 per sweep) from early to midseason in most fields, except for one potato field near Arena in northeast Iowa County where counts of 12 per sweep were recorded July 12. Counts of less than 1 per sweep were maintained with rigid systemic applications at planting and regular foliar applications throughout the season. During August, when counts are perennially heaviest, E. fabae ranged from 3-5 per sweep in poorer managed fields to 1-2 per sweep in fields with rigid spray programs. Populations began decreasing over most of Wisconsin by late August and nearly disappeared by September due to cool temperatures and early freezes. While few if any commercial fields were severely damaged, many home gardens had potato plants turn crinkly brown by late July.

Potato leafhopper was light in most ILLINOIS alfalfa throughout the season. By early May, populations ranged up to one per sweep in the central area. During the week following the first cutting up to 5 per sweep were noted in McLean County. About 18,500 acres were treated saving growers an estimated 37,000 dollars over and above treatment costs. Potato leafhopper populations of economic importance in alfalfa in southern INDIANA increased between cuttings at least once between June 20 and August 20. Nymphal populations peaked during the period July 11-25. Adults peaked about July 24 in 29 northern district fields, nymphs peaked between the last of July and August 15. Average counts in the northwest and north-central districts ranged up to 3 adults per sweep and up to 2 in the northeast district. Treatment and/or early cutting were recommended in almost all of 58 fields at the two ends of the State. Losses were probably equal to those caused by Hypera postica (alfalfa weevil) in 1974. Potato leafhopper was very heavy in many potato fields during summer in MICHIGAN.

Distribution of Spotted Alfalfa Aphid

Therioaphis maculata



Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
February 21, 1975

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
25(9):117, 1975

Potato leafhopper was light throughout KENTUCKY. Heavy populations did develop in alfalfa in Hardin, Mercer, and Garrard Counties with counts ranging 100-300 per 100 sweeps. Only light "hopperburn" was noted however. This leafhopper severely "burned" potatoes in commercial and home plantings in central and southern areas. Potato leafhopper damage to peanuts in the northern Coastal Plain of NORTH CAROLINA was average to slightly lighter. Untreated fields on sandy soils in the Gates, Chowan, and Hertford County areas chronically have problems. In recent years, heavy infestations of this pest have appeared more frequently further south, particularly on light soils not treated with a systemic insecticide at planting. Potato leafhopper populations and damage in VIRGINIA were heavier than for several years in peanuts probably due to a lack of control of rootworms. The most frequently applied chemical for rootworm control was in short supply and many farmers failed to apply an alternative chemical at "pegging" time. Consequently, leafhoppers were not suppressed in early July.

The first significant potato leafhopper adult activity in MARYLAND appeared 10 days earlier than in 1973. Populations in early June ranged 1-2 adults per sweep in most central area alfalfa. By mid-July, the heaviest infested fields ranged 12-50 nymphs per sweep. Although yellowing was evident from July through September 10, losses were generally below 1973 levels. An estimated 9,000 acres needed treating during July and August. Losses were minimized by timely chemical treatments. Population levels for 1975 are expected to be equal to the 1973 and 1974 levels but losses are expected to decline due to increased spraying and better grower monitoring of individual field populations.

Potato leafhopper was present on alfalfa throughout PENNSYLVANIA from early June to late September. Heaviest infestations apparently occurred in the western area in mid-June and mid-August. Heavy infestations occurred in Mercer County with 3.5 per sweep in June and in Erie County with 3.7 per sweep in August. Fields in Mercer and Erie Counties showed even greater levels of infestation (3.1 and 6.6 per sweep, respectively) in September. Infestations in the eastern half of the State seemed to be constant with levels averaging less than one per sweep throughout the area. Some fields were heavily infested, with 0.8-18 per sweep in Cumberland County and 6.6 per sweep in Lancaster County in early August. The first observation of potato leafhopper activity in NEW YORK on alfalfa was June 15 in Cattaraugus County. During late July, extensive yellowing caused by feeding averaged 50+ percent of the plants in alfalfa throughout Orleans and Cattaraugus Counties. A small amount of yellowing, less than 10 percent of alfalfa plants in fields, was observed in Washington County.

SPOTTED ALFALFA APHID (Therioaphis maculata) ranged 20-30 per square foot in alfalfa by mid-January in Eddy County, NEW MEXICO. Populations of 20-50 were common in alfalfa in Chaves County by mid-February. Grazed fields showed lighter populations. Colonies of 12-15 young aphids were observed per trifoliate alfalfa leaf in mid-February in Dona Ana County. By March 1, these counts had increased to 20-70 per square foot. Treatments were common and parasite populations were affected, particularly in Chaves, Eddy, and Lea Counties. By the second week of March, spotted alfalfa aphid counts in untreated fields had decreased to 10-20 per square foot. By March 15, all fields appeared to have populations of 0-25 per square foot. By mid-August, counts ranged 40-50 per 100 sweeps in Quay County. Infestations were mainly light in Bernalillo, eastern Valencia, southwestern Sandoval, Torrance, and Quay Counties.

Spotted alfalfa aphid severely infested several thousand acres of alfalfa in the Deseret, Delta, Sutherland, and Abraham areas of Millard County, UTAH, with treatments required. Infestations were generally noneconomic in other areas of the State. Spotted alfalfa aphid populations were generally light on alfalfa for hay and seed in NEVADA. In seed alfalfa, populations ranged from 1-3 per sweep in Lander County in July and August to 4-30 per sweep in Pershing County in June. No treatments were applied specifically for this pest. Although present in alfalfa in Carter, Fallon, and Wibaux Counties of MONTANA, spotted alfalfa aphid caused no damage to the crop.

Spotted alfalfa aphid averaged 12 per 100 sweeps of alfalfa in Sargent and Ransom Counties, NORTH DAKOTA, by June 14. Infestations remained noneconomic throughout the season. This pest was found in Stutsman, Griggs, Steele, Burleigh, Kidder, Wells, Sheridan, Pierce, McHenry, Ward, Mountrail, Williams, Divide, McLean, and Foster Counties for the first time during 1974. Spotted alfalfa aphid infestations were heavy in alfalfa in west-central OKLAHOMA for about 3 weeks during March. Scattered moderate to heavy numbers were also reported in a few counties from mid-July to mid-August, but most areas had only light infestations all year. Spotted alfalfa aphid was generally light to very light on alfalfa in the Gainesville area of Alachua County, FLORIDA, during 1974.

TOBACCO BUDWORM (Heliothis virescens) emerged early in FLORIDA and infestations in tobacco were moderate to heavy in early April. A cool period in April caused a reduction in infestations that lasted until late June and early July. The tobacco crop season was almost completed before infestations began to recover from the cool weather in April. This pest was of no consequence in the tobacco fields, even though early infestations were quite numerous. Weather conditions caused a natural decrease in populations which aided control measures very much.

Tobacco budworm larvae were the major insect problem on tobacco in SOUTH CAROLINA. Infestations of up to 90 percent occurred in some areas and nearly all fields were infested to some degree. Treatments maintained a minimum of damage to this profitable crop. Damage by this pest to tobacco was generally light where adequate controls were applied in the Coastal Plain of NORTH CAROLINA. However, much heavier damage than normal occurred in Surry, Stokes, and Rockingham Counties. Some fields in this area had 50 percent infestation levels during the last 14 days of June. Infestation levels in this area normally do not exceed 5 percent of the plants.

Tobacco budworm populations and damage estimates were somewhat above normal on tobacco in Calvert and St. Marys Counties, MARYLAND, with 8,000 acres treated twice during the season. In mid-July, damage peaks in Prince Georges and Charles Counties were well below 1973 record levels with only 4,000 acres needing an average of 1.5 treatments during the season. Yield losses to tobacco ranged 1-3 percent in Charles and Prince Georges Counties and up to 10 percent in St. Marys County. In late September, populations on sucker growth were only slightly less than at the same time in 1973, so overwintering populations were sufficiently heavy to insure moderate to heavy population levels for 1975.

TOBACCO HORNWORM (Manduca sexta) infestations were noted at the 75-percent level on tobacco in some counties in the lower part of SOUTH CAROLINA. Overall populations and damage were lighter than in 1973. There were no tobacco hornworm infestations observed in any type 62 (shade-grown) tobacco field in FLORIDA. Infestations were heavier in flue-cured (type 14) tobacco, than in 1973 and this was the number one field pest in 1974. Control was excellent in treated commercial plantings. Tobacco hornworm was severe and early in home gardens and in a few commercial tomato fields in CALIFORNIA.

STATE SURVEY COORDINATORS

Alabama	Dr. F. S. Arant, Head, Department of Zoology-Entomology, Auburn University, Auburn 36830 Phone: 205-826-4850 or 826-4852
Alaska	Dr. Richard H. Washburn, Entomology Department, Agricultural Experiment Station, Palmer 99645
Arizona	Dr. David Langston, Extension Entomologist, University of Arizona, P.O. Box 751, Phoenix 85001 Phone: 602-258-8651
Arkansas	Dr. F. D. Miner, Head, Department of Entomology, University of Arkansas, Fayetteville 72701 Phone: 501-575-2451
California	Mr. Daniel W. Robinson, State Entomologist, Division of Plant Industry, Special Services, California Department of Agriculture, 1220 N Street, Sacramento 95814 Phone: 916-445-3588
Colorado	Dr. W. Don Fronk, Department of Zoology and Entomology, Colorado State University, Fort Collins 80521 Phone: 303-491-5843
Connecticut	Mr. George W. Schuessler, Deputy State Entomologist, Agricultural Experiment Station, Box 1106, New Haven 06504 Phone: 203-787-7421
Delaware	Dr. Dale F. Bray, Head, Department of Entomology and Applied Ecology, University of Delaware, Newark 19711 Phone: 302-738-2526
Florida	Mr. H. L. Jones, Director, Division of Plant Industry, Florida Department of Agriculture, P.O. Box 1269, Gainesville 32601 Phone: 904-372-3505
Georgia	Mr. Carl M. Scott, Jr., Director, Division of Entomology, Georgia Department of Agriculture, 19 Hunter Street, Room 304, Atlanta 30334 Phone: 404-656-3641
Hawaii	Mr. Ronald F. L. Mau, Hawaii State Department of Agriculture, P.O. Box 5425, Honolulu 96814
Idaho	Dr. A. R. Gittins, Head, Department of Entomology, College of Agriculture, University of Idaho, Moscow 83843 Phone: 208-885-6595
Illinois	Dr. Stevenson Moore, III, Extension Entomologist, University of Illinois and Illinois Natural History Survey, Natural Resources Building, Urbana 61801 Phone: 217-333-6651
Indiana	Dr. Eldon E. Ortman, Head, Department of Entomology, Purdue University, West Lafayette 47907 Phone: 317-493-9185

Iowa	Dr. Paul A. Dahm, Chairman, Department of Zoology and Entomology, 339 Science II, Iowa State University, Ames 50010 Phone: 515-294-3316
Kansas	Dr. Herbert Knutson, Head, Department of Entomology, Waters Hall, Kansas State University, Manhattan 66506 Phone: 913-532-6154
Kentucky	Dr. Wesley W. Gregory, Department of Entomology, University of Kentucky, Lexington 40506 Phone: 606-258-5638
Louisiana	Dr. L. D. Newsom, Head, Department of Entomology, Louisiana State University, Baton Rouge 70803 Phone: 504-388-1634
Maine	Dr. G. W. Simpson, Head, Department of Entomology, University of Maine, Orono 04473 Phone: 207-581-7704
Maryland	Dr. W. C. Harding, Jr., Extension Entomologist, Department of Entomology, University of Maryland, College Park 20742 Phone: 301-454-3845
Massachusetts	Dr. Gary L. Jensen, Assistant Professor of Entomology, Department of Entomology, University of Massachusetts, Amherst 01002 Phone: 413-545-2285
Michigan	Dr. James Bath, Chairman, Department of Entomology, Michigan State University, East Lansing 48824 Phone: 517-355-4665
Minnesota	Mr. Robert B. Flaskerd, Director, Division of Plant Industry, Minnesota Department of Agriculture, State Office Building, St. Paul 55101 Phone: 612-296-3347
Mississippi	Dr. F. G. Maxwell, Head, Department of Entomology, Mississippi State University, State College 39762 Phone: 601-325-3102
Missouri	Dr. W. S. Craig, Extension Entomologist, Department of Entomology, 1-87 Agriculture Building, University of Missouri, Columbia 65201 Phone: 314-882-3446
Montana	Mr. Ellsworth B. Hastings, State Entomologist, Department of Zoology and Entomology, Montana State University, Bozeman 59715 Phone: 406-587-3121
Nebraska	Dr. Elvis A. Dickason, Head, Department of Entomology, University of Nebraska, Lincoln 68503 Phone: 402-472-2124
Nevada	Mr. Harry E. Gallaway, Administrator, Division of Plant Industry, Nevada Department of Agriculture, P.O. Box 1209, Reno 89504 Phone: 702-784-6401

New Hampshire	Dr. R. L. Blickle, Professor, Department of Entomology, University of New Hampshire, Nesmith Hall, Durham 03824 Phone: 603-862-1707
New Jersey	Dr. Billy R. Wilson, Chairman, Department of Entomology and Economic Zoology, College of Agriculture and Environmental Science, Rutgers University, New Brunswick 08903 Phone: 201-247-1766, ext. 1774
New Mexico	Dr. G. L. Nielsen, Chief, Division of Plant Industry, State Department of Agriculture, Box 3180, Las Cruces 88003 Phone: 505-646-3207
New York	Dr. Edward H. Smith, Department of Entomology, Cornell University, Ithaca 14850 Phone: 607-256-3253
North Carolina	Dr. Robert L. Robertson, Extension Entomologist, North Carolina State University, P.O. Box 5215, State College Station, Raleigh 27607 Phone: 919-755-2746
North Dakota	Mr. William J. Brandvik, State Entomologist, Office of State Entomologist, North Dakota State University, Fargo 58102 Phone: 701-237-7581
Ohio	Dr. Robert E. Treece, Ohio Agricultural Research and Development Center, Wooster 44691 Phone: 216-264-1021
Oklahoma	Dr. D. C. Peters, Head, Department of Entomology, Oklahoma State University, Stillwater 74074 Phone: 405-372-6211, ext. 7055
Oregon	Mr. William Kosesan, Assistant Chief, Plant Division, Oregon State Department of Agriculture, Agriculture Building, 635 Capital, N.E., Salem 97301 Phone: 503-378-3776
Pennsylvania	Dr. Ke Chung Kim, Department of Entomology, The Pennsylvania State University, 208 Patterson Building, University Park 16802 Phone: 814-865-1895
Puerto Rico	Agricultural Experiment Station, University of Puerto Rico, Rio Piedras 00928 Phone: 809-767-9705
Rhode Island	Dr. Rudolph D'Andrea, Chief, Division of Agriculture, Department of Natural Resources, Veterans Memorial Building, Providence 02903 Phone: 401-277-2781
South Carolina	Dr. C. A. Thomas, Professor, Entomology and Economic Zoology, 305 Long Hall, Clemson University, Clemson 29631 Phone: 803-656-3113

South Dakota	Dr. R. J. Walstrom, Head, Entomology-Zoology Department, South Dakota State University, Brookings 57006 Phone: 605-688-6176
Tennessee	Mr. H. L. Bruer, Director, Division of Plant Industries, P.O. Box 40627, Melrose Station, Nashville 37204 Phone: 615-741-1551
Texas	Dr. P. L. Adkisson, Head, Department of Entomology, Texas A&M University, College Station 77843 Phone: 713-845-2516
Utah	Mr. R. S. Roberts, Extension Entomologist, Utah State University, Logan 84322 Phone: 801-752-4100, ext. 7811
Vermont	Mr. Phil R. Benedict, Plant Pest Control Division, Vermont Department of Agriculture, 116 State Street, State Office Building, Montpelier 05602 Phone: 802-828-2420
Virginia	Dr. J. M. Grayson, Head, Department of Entomology, 216 Price Hall, Virginia Polytechnic Institute and State University, Blacksburg 24061 Phone: 703-951-6341
Washington	Dr. Robert F. Harwood, Chairman, Department of Entomology, Washington State University, Pullman 99163 Phone: 509-335-5504
West Virginia	Mr. Albert E. Cole, Director, Plant Pest Control Division, West Virginia Department of Agriculture, Charleston 25305 Phone: 304-348-2212
Wisconsin	Mr. Philip W. Smith, Plant Industry Division, Wisconsin Department of Agriculture, 801 West Badger Road, Madison 53713 Phone: 608-266-7133
Wyoming	Mr. Walter H. Patch, Wyoming State Department of Agriculture, 2219 Carey Avenue, Cheyenne 82001 Phone: 307-777-7321

Revised February 28, 1975

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
25(9):121-124, 1975

COOPERATIVE SURVEY ENTOMOLOGISTS

Alabama	Mr. H. Frank McQueen, Cooperative Extension Service, Auburn University, Auburn 36830 Phone: 205-826-4987
Arizona	Mr. Judson May, Arizona Commision of Agriculture and Horticulture, 1688 W. Adams Street, Room 414, Phoenix 85007 Phone: 602-271-4373
Arkansas	Mr. W. P. Boyer, Department of Entomology, University of Arkansas, Fayetteville 72701 Phone: 501-575-2451
California	Mr. Ronald M. Hawthorne, California Department of Agriculture, 1220 N Street, Sacramento 95814 Phone: 916-445-5986
Colorado	Modified Agreement
Delaware	Modified Agreement
Florida	Dr. Frank W. Mead, Division of Plant Industry Florida Department of Agriculture, P.O. Box 1269, Gainesville 32601 Phone: 904-372-3505
Hawaii	Mr. Ronald F. L. Mau, Hawaii State Department of Agriculture, P.O. Box 5425, Honolulu 96814
Idaho	Modified Agreement
Illinois	Mr. Tim A. Cooley, University of Illinois, 83 Natural Resources Building, Urbana 61801 Phone: 217-333-6651
Indiana	Mr. Robert W. Meyer, Department of Entomology, Purdue University, West Lafayette 47907 Phone: 317-493-9705
Iowa	Dr. Jerald R. DeWitt, Extension Entomologist, 103 Insectary, Iowa State University, Ames 50010 Phone: 515-294-1101
Kansas	Dr. K. O. Bell, Jr. Division of Entomology, Kansas State Board of Agriculture, State Office Building, Topeka 66612 Phone: 913-296-3016
Kentucky	Mr. Douglas E. Barnett, University of Kentucky, Agriculture Science Center, North Lexington 40506 Phone: 606-258-5955
Maine	Mr. Arthur Gall, Department of Entomology, University of Maine, Orono 04102 Phone: 207-581-7703
Maryland	Mr. John L. Hellman, Department of Entomology, University of Maryland, College Park 20742 Phone: 301-454-3845
Massachusetts	Mosified Agreement

Michigan	Mr. James Liebheer, Department of Entomology, Michigan State University, East Lansing 48824 Phone: 517-353-3890
Minnesota	Mr. H. Hoger, Division of Plant Industry, Minnesota Department of Agriculture, 670 State Office Building, St. Paul 55101 Phone: 612-296-3347
Mississippi	Mr. James V. Robinson, P.O. Drawer EM, Mississippi State University, State College 39762 Phone: 601-325-4541
Missouri	Dr. Ralph E. Munson, Department of Entomology, 1-87 Agriculture Building, University of Missouri, Columbia 65201 Phone: 314-882-3748
Montana	Modified Agreement
Nebraska	Mr. David L. Keith, Extension-Survey Entomologist, Plant Industry 201-A, East Campus, University of Nebraska, Lincoln 68503 Phone: 402-472-2124
Nevada	Modified Agreement.
New Hampshire	Modified Agreement
New Mexico	Dr. William A. Iselin, Division of Plant Industry, State Department of Agriculture, Box 3180, Las Cruces 88003 Phone: 505-646-3207
New York	Dr. Harold R. Willson, Department of Entomology Cornell University, Ithaca 14850 Phone: 607-256-4426
North Carolina	Mr. Thomas N. Hunt, Survey Entomologist, 2309 Gardner Hall, North Carolina State University, Raleigh 27607 Phone: 919-737-2831
North Dakota	Mr. Calvin G. Scholl, Assistant State Entomologist, Office of State Entomologist, North Dakota State University, Fargo 58102 Phone: 701-237-7581
Ohio	Vacant
Oklahoma	Mr. Don C. Arnold, Department of Entomology, Oklahoma State University, Stillwater 74704 Phone: 405-372-6211, ext. 7066
Oregon	Dr. Richard L. Penrose, Plant Division, Oregon State Department of Agriculture, Agriculture Building, 635 Capital, N.E., Salem 97310 Phone: 503-378-3776
Pennsylvania	Dr. Ke Chung Kim, Department of Entomology, The Pennsylvania State University, 208 Patterson Building, University Park 16802 Phone: 814-865-1895
Rhode Island	Modified Agreement

South Carolina	Mr. V. H. McCaskill, Plant Pest Regulatory Service, Tillman Hall, Clemson University, Clemson 29631 Phone: 803-656-3006
South Dakota	Dr. David D. Walgenbach, Entomology-Zoology Department, South Dakota State University, Brookings 57006 Phone 605-688-6176
Tennessee	Mr. Chester D. Gordon, Division of Plant Industries, P.O. Box 40627, Melrose Station, Nashville 37204 Phone: 615-741-1551
Texas	Mr. L. Reed Green, Department of Entomology, 201 Biological Science Building, Texas A&M University, College Station 77843 Phone: 713-845-1661
Utah	Modified Agreement
Virginia	Dr. William Allen, Department of Entomology, 312 Price Hall, Virginia Polytechnic Institute and State University, Blacksburg 24061 Phone: 703-951-6772
Washington	Modified Agreement
West Virginia	Mr. J. D. Hacker, Plant Pest Control Division, West Virginia Department of Agriculture, Charleston 25305 Phone: 304-348-2212
Wisconsin	Mr. Orville L. Lovett, Plant Industry Division, Wisconsin Department of Agriculture, 801 West Badger Road, Madison 53713 Phone: 608-266-7138
Wyoming	Modified Agreement

Revised February 28, 1975

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
25(9):125-127, 1975

Weather of the week continued from page 94.

storms drenched sections of the South Atlantic Coast States along a front from North Carolina to southern Alabama. Elsewhere, a frontal system invaded the Pacific Northwest producing showers along the Washington and Oregon coasts. The Pacific frontal system pushed eastward to the northern Rockies Thursday. Gradually the system inched through the Rockies to the central Plains and southwestward to the Plateau region and to central California, producing considerable rain along the front and snow over the mountainous areas. Friday, a winter storm along the front blanketed Winslow and Flagstaff, Arizona, with one inch of snow in just one hour. High winds accompanied the storm whipping across Kingman, Arizona, at 60 m.p.h. and battering Rapid City, South Dakota, at 50 m.p.h. On Saturday, a complex storm system triggered snow throughout New Mexico, and behind the front in Oklahoma, Missouri, and Kansas. Heaviest snow fall was reported in southeast Kansas and west-central Missouri where 2 to 4 inches or more were widespread in those areas. Sunday, the cold front dangled from northern New England to a Low in northern Ohio extending southwestward to a Low in Mississippi, southward into the gulf. This system dumped snow from eastern Oklahoma into northern Illinois and southeast Wisconsin. Greatest amounts covered southwest Missouri with 13 inches at Monett and 10 inches at Springfield.

TEMPERATURE: Most of the Eastern United States experienced temperatures near or above normal last week, from northwestern Montana east-southeastward to Iowa and southward through the Mississippi Valley. The greatest above-normal depatures occurred in Ohio, northern New England, and the Southeastern United States, where temperatures were 12 degrees or more above the seasonal normals. Except northern Montana, North Dakota, and Minnesota, all of the area west of the Mississippi River Valley averaged below normal temperatures for the week. Monday, unseasonably warm air surged over the Southeast contrasting with very cold temperatures surrounding the High Plains. By early afternoon, the thermometer hit 86 degrees in Fort Myers, Florida, while Butte, Montana, was only 3 degrees below zero after a morning low of 13 degrees below zero. Early morning temperatures were rather cold in the West with some subzero readings from the northern Plains into the central Plateau region. Tuesday, Tucson, Arizona, equaled the record low temperature for the date with 28 degrees. Wednesday, unseasonably warm weather was experienced in the Atlantic Coast States, while cool temperatures prevailed from the west coast all the way to the lower Mississippi Valley. The thermometer dipped into the upper 20's in some citrus groves in southern California. Much of the Nation experienced fair weather on Thursday. Unseasonably warm weather dominated southern Florida, where West Palm Beach recorded another record high for the date with 88 degrees. This was the fourth time in eight days. Friday, warm weather continued in southern Florida while colder air spread across the northern and central Plains. West Palm Beach reported a record-breaking high of 86 degrees for the eighth time this year. Afternoon temperatures in the 60's ranged as far north as southwest Pennsylvania while the 30's lingered as far south as southwest Texas, Saturday. Little Rock, Arkansas, set a record high for the day with 75 degrees. Sunday, temperatures in the East were quite mild. Record highs were set at Norfolk, Virginia, 79 degrees, Raleigh, North Carolina, 77 degrees, and Atlantic City, New Jersey, 59 degrees. Freezing weather occurred southward through southwest Texas into Mexico.

U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101

U.S.MAIL